GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, JULY 17, 1889.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—The Treatment of Road-sides 337
Notes Upon Some North American Trees—I. . . . . *Professor C. S. Sargent.* 338
The Sumachs (Illustrated) . . . . . *S.* 338
A New Zealand Forest Scene (Illustrated) 339
FOREIGN CORRESPONDENCE:—London Letter . . . . . *W. Goldring.* 339
NEW OR LITTLE KNOWN PLANTS:—Vitis palmata . . . . . *C. S. S.* 340
Amorphophallus Titanum . . . . . *W. Watson.* 340
CULTURAL DEPARTMENT:—Summer Pruning . . . . . *Jackson Dawson.* 342
The Vitality of Seeds . . . . . *T. H. Hoskins, M.D.* 342
Orchid Notes . . . . . *John Weathers.—W.* 342
Notes on Wild Flowers . . . . . *F. H. Horsford.* 344
Narcissus for Borders . . . . . *E. O. Orpet.* 344
Orchard Notes . . . . . *Joseph Meehan.* 345
RECENT PUBLICATIONS 345
CORRESPONDENCE:—Forests and Civilization . . . . . *J. B. Harrison.* 345
Roadside Adornment . . . . . *Dorcas E. Collins.* 346
The Newtown Pippin . . . . . *E. J. Wickson.* 346
The American Beech . . . . . *C. L. Allen.* 346
Dosoris . . . . . *S.* 346
NOTES 348
ILLUSTRATIONS:—Vitis palmata, Fig. 118 341
Forest Vegetation in New Zealand 343
A Group of Staghorn Sumachs 343

The Treatment of Road-sides.

THE planting of trees along all highways is usually insisted upon as a public duty by persons who take an active interest in matters which pertain to rural improvement. The first work undertaken by village improvement societies is most frequently road-side tree-planting. The activity of Arbor Day is apt to expend itself in the same direction, and very often the work is commendable from every point of view. A long, straight, level avenue with a row of Elms, or Sugar Maples, or Tulip-trees on either side set on smooth turf at regular intervals, is always beautiful. No nobler approach to a stately mansion can be conceived of than such an avenue. As an introduction to a suburban park, or the extension of the main street of a country village, especially when it leads to some object of adequate dignity, such an avenue is always satisfying. But in an open, hilly country, road-sides are not always improved when bordered by a formal line of trees. To one standing on an eminence, slender lines of foliage following the winding of various roads across the landscape would rarely be pleasing, and to one traveling on such roads the constant shade and the unvarying repetition of a tree on either side at equal distances would be still more displeasing.

It does not follow from this that the planting of trees along country highways should be discouraged, but it should be remembered that trees can be agreeably disposed in various ways, and that in many cases an occasional group of trees at a cross-road, or a single tree here and there at desirable points by the wayside, will prove more attractive than a monotonous row on either hand in which each tree is precisely fifty feet from its neighbor. It should be remembered, too, that shrubs and vines, and even humbler growths, should have a place on a road-border as well as trees, and there are many road-borders where they are of much more importance than trees. These thoughts have been suggested by a letter which is published in another column of this issue. This letter will enable any one to realize how trifling an outlay of labor and expense is needed to transform the hot, raw gravel-slope of an excavation or embankment into a sweep of verdure, which becomes purple and fragrant with bloom in its season. An unsightly gully filled in with brush to guard against a more serious wash-out becomes in its turn a bower of beauty under the directing hand of one who thinks it worth his while to render such service to the wayfarer. We have heard of a piece of road on Long Island which is bright with flowers in their season, through the thoughtful care of the gardener of a large estate near by. We know a mile of country road which grows more attractive every year because a little care is taken to introduce the flowers and shrubs and vines which flourish naturally in that region. Marsh Marigolds and Cardinal flowers have been made at home by the outlet of a wayside spring. Houstonia and Bloodroot bloomed this year where they were unknown before. The thickets are fringed with an increasing variety of Ferns, and Club Mosses are now creeping among them. Even in winter the heps of wild Roses and the berries on the Red Alder show how a road-side can be brightened by a few hours of attention in a year.

It is hardly to be hoped, however, that every land-owner will be persuaded to take such an active and intelligent interest in the treatment of road-sides. The energetic pathmaster would think it beneath his dignity to plant shrubs or sow flower-seeds to help cover over the seams and scars left by man in the track of all his "improvements." But, fortunately, he need put himself to little trouble in all the hill-country east of the Alleghanies, at least, for Nature, if left to her own kind offices, will at once begin to clothe the desert made by man. No artificial planting can be more attractive than the natural thickets which would fringe almost every road in New England and the Middle States, if they were only allowed to grow. In many places, it is true, such growth would be out of place. Smooth turf running from the wheel-way to, or under, the fences inclosing fertile fields is always attractive. In the rougher country, however, the natural border of shrubs and trees and festooning vines is generally worth preserving. The Thorns and Dogwoods and Viburnums, the thickets of Elder and Hazel, the Bitter-sweet and Clematis and Moonseed climbing over all—the flora of the world has no more beautiful plants than these and a hundred more which spring up of themselves and flourish until some one with a zeal for "trimming up" attacks them with grubbing-hoe and brush-hook. And when the vines are stripped from the fences, and the brush all cut, gathered and burned, the road-sides are thoroughly cleared, it is true, but a desolation of rocks and ashes is all that is left in exchange for the fragrance of flowers, the beauty and coolness of green leaves, and the melody of the birds among them.

It is a comfort to note that road-borders of native shrubs are being used more and more in the best park-work. Nothing can be more effective than the shrubbery on either side of the drive through the Arnold Arboretum, not only as an appropriate cover for hill-sides where Myrica, Sweet Fern and other low-growing shrubs take the place of turf, but for the distinct purpose of fringing the road. These shrubs are proving themselves no less useful or appropriate along the smooth, broad and well-kept wheel-way than they are in remote by-ways among the hills. Indeed, it is difficult to imagine how the hard, stony gutter-line beside the road-bed could be more agreeably broken than it is by the Wild Roses or Red-root that occasionally stray across it, or how any other shrub would take the place of the Sumachs banked above one portion of the drive. Every one of these shrubs would grace a palace garden, and yet when they modestly appear along a rural highway they are mowed down to "improve the appearance" of the country. If there is no reason to look for any general and organized effort to beautify our country road-sides, let us hope at least that overseers of the highway may in time be induced to refrain from expending labor and money to destroy the native shrubs and vines and trees which clothe so many waysides with beauty as with a garment.

Notes Upon Some North American Trees.—I.

THE last catalogue of the trees of this continent (exclusive of Mexico) was published in New York in 1885, in a work entitled "The Woods of the United States," intended as a guide to Mr. Jesup's collection of woods in the American Museum of Natural History. This was a condensation, with a few unimportant changes, of the more detailed catalogue of our trees which I had published the year before in the ninth volume of the Final Reports of the Tenth Census of the United States. Since this catalogue was written I have had the opportunity of studying, for the first time in the field, many of our trees during different journeys undertaken for the purpose, especially those found in the extreme southern portion of Florida and in the valley of the lower Rio Grande; and to examine in European herbaria, type specimens of many of the old species. A large number of correspondents, moreover, in different parts of the country have continued to favor me with information bearing upon this subject. Questions of nomenclature, too, are now, perhaps, more than ever before occupying the attention of botanical students; and although the subject is perplexing enough in some cases, I cannot any longer delay a discussion of the names which should be applied to our trees, as the first volume of the new "Silva of North America," which has engaged my attention pretty continuously during the last ten years, will not, it is to be hoped, be much longer delayed, the plates for the illustrations for nearly three volumes being already engraved. It is therefore desirable to print now such changes, from the Census Catalogue, as fuller information than was available when it was written appears to make desirable both as a record of facts and for the purpose of calling out criticism, which, as well as any facts about our trees, it is needless for me to say, will be welcomed from all quarters. I shall now take up, therefore, the Catalogue as it was published in the Census Report, and briefly note such changes as it now seems necessary to make in it. The numbers prefixed to the species are those of the Census Catalogue.

4. Magnolia cordata, Michx.—Michaux's specimens preserved in the *Museum d' Histoire Naturelle*, in Paris, upon which Richard founded this species, have leaves which are not at all cordate, and are clearly that form of *M. acuminata*, with broadly oval, rarely cordate leaves, more or less pubescent on the lower surface, and rather small, yellow flowers, which Dr. Mohr has found in central Alabama and I have collected on the Blue Ridge, in North and South Carolina, and which Michaux, as his own labels, still attached to the Paris specimens, show, considered to be *M. acuminata*.* I have already proposed for this form, and for the plant known in gardens as *M. cordata*, the name of *M. acuminata*, var. *cordata* (*American Journal of Sciences and Arts*, 3 ser. xxxii., 466). No wild form, it must be said, has been found just like the one, of unknown origin long preserved in cultivation, which has small, canary-yellow flowers, broadly oval and, occasionally, slightly cordate dark green leaves. Two specimens of this variety may be seen in the Harvard Botanic Garden, where they were found already well-grown trees by Professor Gray in 1842 when he assumed control of the garden. The plant so often spoken of by Michaux in his journal as *M. cordata* was *M. Fraseri*, Walt.

5. Magnolia Umbrella.—Linnæus first named this plant *M. Virginiana*, var. *tripetala* (Species Plantarum, 536), and in the second edition of the same work *M. tripetala*. Lamark, twenty-eight years later (Encyclopédie Methodique, iii., 644), proposed for it the name *M. Umbrella*, quoting Linnæus' name as a synonym, but giving no reason for discarding it. The Lamarkian name was taken up by De Candolle (Systema, i., 452), the sentence "petala oblonga concava 9–12 (nec 3 ut vult nomen Linnæanum)" explaining his reason for so doing. Many botanists, notably Professor Gray in all his works, have followed Lamark and De Candolle in discarding the Linnæan name, which was based upon the three broad reflexed petaloid sepals of this species, which, as they are not strictly petals, make it, perhaps, inappropriate. But in natural-history nomenclature it is now well nigh universally acknowledged among working naturalists that a name cannot properly be changed because it happens to be inappropriate. The inappropriateness of the name, moreover, in this particular case is certainly not great enough to warrant its disuse; and I should therefore propose to take up for this species the name *Magnolia tripetala*, L.

13. Clusia flava, L.—This plant has been considered a native of Key West on the strength of a specimen collected by Dr. Blodgett more than fifty years ago. It has now entirely disappeared from the island, and has never been seen on any of the neighboring Keys, so that it may be supposed that Nuttall, who published Dr. Blodgett's discoveries, mistook in the case of this plant. as he did in that of *Terminalia Catappa*, also included in his supplement to Michaux's Sylva, a cultivated for an indigenous plant.

17. Tilia Americana, var. pubescens.—Professor Gray (*Proc. Am. Acad.*, new ser. xxii., 305) has pointed out characters ("smaller and mostly thinner leaves, distinctly pubescent beneath, yet often glabrate in age; floral bract usually rounded at base, except the uppermost; fruit ovoid, usually lightly costate") which seem to separate this plant specifically from *Tilia Americana*. The oldest name connected with it is *T. Caroliniana*, of Miller (Dictionary 204), but, as Professor Gray has suggested (*l. c.*), Miller's characters point to *T. Americana*, as do those of Wangenheim and Marshall, who followed him in the use of this name. Aiton's name, *Tilia pubescens*, will, therefore, be most safely retained for this tree.

19. Byrsonima lucida, HBK.—This plant, as it appears on the Florida Keys, is a low, slender shrub, rarely attaining a height of six feet; and I have now no reason to believe that it ever becomes a tree. I should propose, therefore, to drop it from the North American Silva, unless it is known to become arborescent in the West Indies.

C. S. Sargent.

*The two specimens in Herb. Michx. of *Magnolia cordata* are labelled in Michaux's handwriting, the first "*Magnolia acuminata* florib. flavis;" the second "*Magnolia lutea*, fol. acuminatis florib. luteis, collines, territoire de Squirel's Creek."

The Sumachs.

ALL the Sumachs, as the plants of one section of the genus Rhus, of eastern North America are popularly called, are plants of great ornamental value, and if they do not now play a more important part in the decoration of American gardens, it is because they are seen so commonly along the borders of the highways or upon rocky slopes, that they are not supposed to be worth a place in the garden or upon the lawn. In Europe they are often planted; indeed, in the countries of central and northern Europe no exotic plant, with the exception, perhaps, of the American Locust (*Robinia Pseudo-Acacia*), and its varieties, is planted so commonly, or is so generally admired, as the Staghorn Sumach. They are all plants of good habit, with bold and handsome pinnate leaves. The flowers, which are small and greenish-white in color, are not, in themselves, showy or conspicuous, but the great terminal panicles in which they are clustered are striking, from their size and are conspicuous objects. The panicles of fruit, which is a small, dry drupe, covered with scarlet hairs, give great beauty to the female plants in the autumn, for the Sumachs are dicœcious, or mostly so—that is, they produce, ordinarily, male and female flowers upon different individuals. The foliage of all the species turns to an intense scarlet color during the month of October, when some of the most beautiful effects of American autumn-coloring are produced by the great masses of these plants, often found spreading over the rocky hills of the New England and middle States.

There are three species of Sumach in eastern North America:

The Staghorn Sumach (*Rhus typhina*) is the largest of them in the northern States, and the one most generally cultivated in Europe. It reaches sometimes the size and habit of a small tree, thirty or thirty-five feet high, with a trunk eight or ten inches in diameter at the base. This, like the branches, is generally more or less crooked or contorted; it is covered with a light brown bark, separating sparingly into very thin, flakey scales. The young branches are stout, forked, entirely

destitute of spray, generally crooked, and covered with a dense velvety-pubescence—a character which has gained for this plant its popular name, from the supposed resemblance of the branchlets to the young horns of the stag. The leaves are two to three feet long and are composed of from eleven to thirty-one pairs of lanceolate, serrate, sharply pointed, sessile leaflets, dark green on the upper and pale on the lower surface. This species flowers in New England during the third week of June; the fruit begins in August to assume the scarlet color, which it retains throughout the autumn and long after the leaves have fallen.

The Staghorn Sumach is found from New Brunswick to Minnesota; it is very common through the northern States, and extends southward along the Alleghany Mountains to upper Georgia and to central Alabama and Mississippi. It is found growing in nearly all soils, but requires a deep, rich and rather moist loam, in order to develop its full beauty and best size. The wood of the Staghorn Sumach is light, brittle and coarse grained, of a yellow color streaked with green; the bark and leaves are rich in tannin and are somewhat used in dressing leather and, domestically, for dyeing cloth yellow; and the whole plant contains a copious resinous, milky juice. Our illustration upon page 343 will give an idea of the value of the Staghorn Sumach in ornamental planting. It is from a photograph of a broad mass—about eighteen feet high and fifty feet long—of these plants, growing upon the borders of one of the most carefully planted lawns in the United States, where it is by no means, the least attractive object among the plants gathered from all the temperate parts of the world associated with it. The Staghorn Sumach is valuable in ornamental planting when grown in a mass and kept compact by occasional shortening-in of the vigorous upright branches, as in the group which serves as the subject for our illustration. It can be planted, too, with admirable effect, as a single specimen upon the lawn; and from the habit, common to all the Sumachs, of spreading rapidly from underground shoots, it is one of the best plants for clothing rocky banks, railroad-cuts, and other rough places, where it is desirable to hold the soil from washing and to shade the ground. The Staghorn Sumach can be increased from seed; but a supply of young plants, and this is true of all the species, can be obtained more quickly by cutting up pieces of the stout roots into lengths of two or three inches and planting them in rich soil in nursery rows. Vigorous young plants, of a size suitable for permanent planting, can be attained by this method in a year.

Rhus glabra, the Smooth Sumach, is a smaller plant than the Staghorn Sumach, never reaching to the size and habit of a tree, and rarely exceeding a height of ten or twelve feet. It is a broad, spreading, handsome bush with irregular branches, which are smooth and often somewhat glaucous. The leaves are composed of thirteen to thirty-one pairs of lanceolate-oblong, sharply pointed, serrate, sessile leaflets, which are glaucous on the lower surface. The greenish-white flowers are borne in broad, thyrsoid panicles, eight to ten inches long, and are not open until the middle of July, or two or three weeks later than the last species. The fruit resembles that of the Staghorn Sumach. *Rhus glabra* is found from eastern Canada to Washington Territory, extending south to Georgia, Texas and New Mexico. It is a common and generally distributed plant, being commonly seen along the borders of woods and farm inclosures, or covering dry and barren fields and rocky hills, sometimes almost to the exclusion of other plants. As an ornamental plant it is as valuable as the Staghorn Sumach, except that it never attains the size of that plant; and it can be propagated and used in the same way. There is a variety with deeply incised leaflets (var. *laciniata*), discovered many years ago in Chester County, Pennsylvania, which is often seen in gardens.

Rhus copallina, sometimes, at the north, called the Dwarf Sumach, is the last of the three species popularly called Sumach in the United States. The name of Dwarf Sumach is appropriate enough in the northern States, where this species is only found upon dry and, generally, barren soil, and where it grows to a height of only a few feet. In the southern States, however, especially in the neighborhood of streams in the valleys situated about the base of the high mountains of Tennessee and Carolina and along the borders of the rich bottom-lands of southern Arkansas and western Louisiana, it becomes a round-headed tree, sometimes forty feet high, with a tall, straight trunk, ten or twelve inches in diameter at the base, and is the largest of all the North American Rhus, with the exception of the south Florida and West Indian *R. Metopium*.

The branches and leaf-stalks of *Rhus copallina* are downy, and the leaves, which are composed of nine to twenty-one pairs of oblong or ovate-lanceolate, serrate, or of the entire leaflets oblique or unequal at the base, may be readily distinguished from those of the other species by the broad wings which occur on the petiole between the leaflets, and by their lustrous upper surface. It is the latest of the species to flower. They do not appear in New England until the middle of August, and the fruit is ripe a month later.

The panicle of the male or sterile flowers is twelve to eighteen inches long, its stem and branches quite downy; while that of the female flowers is shorter, three to six inches long, with less downy stem and branches. The fruit is somewhat compressed, ovoid, dark, vinous-red, with scattered gray dots when ripe, the clusters not upright as in the other species, but more or less pendulous from the ends of the more slender branches. The leaves, although smaller than in the other species, are beautifully bright and lustrous, and in the autumn turn, not scarlet, but to a deep, rich claret color. Although less often planted than the Staghorn Sumach, this is, perhaps, the most ornamental of the Sumachs, and few shrubs or small trees can be used upon the lawn or in great masses on rocky hill-sides with better effect. The fact that it will thrive and spread rapidly in dry and sterile soil increases its value.

The genus Rhus, of which more than a hundred species are now recognized by botanists, is widely distributed through the extra-tropical portion of the northern hemisphere, especially in eastern Asia and in eastern North America. In Europe this genus is confined to the southern and south-east portions of the continent, where four species occur; it is found in the Andean region of South America, in the East Indies, and abundantly in tropical Africa, south of the equator, and in the Cape region. Eight or nine species in addition to the true Sumachs are found within the limits of the United States, over which the genus is widely and very generally distributed. Four of these species—the so-called Poison Ivy and the Poison Dogwood of the East, the Poison Sumach of semi-tropical Florida, and the Poison Oak of the Pacific States—contain a milky juice, which is exceedingly poisonous to most persons touching these plants. *S.*

A New Zealand Forest Scene.

PERSONS familiar only with the dwarf Ferns of the temperate parts of the earth, have but a faint idea of the magnificence of the arborescent forms of these plants, which are often conspicuous features in the tropics, and which outside of the tropics are found only in some parts of Australia, in Van Dieman's Land and in New Zealand. Tree Ferns are often inhabitants of conservatories, but they must be seen in their native forests, clothing the forest-floor with a gigantic undergrowth, and producing an effect of vegetable richness and grace which no pen can describe, before all the effects of beauty they are capable of displaying can be realized. The illustration upon page 343 of a New Zealand forest scene, with one of the large Dicksonias in the foreground, serves to give an idea of the peculiar vegetation of that region. Tree Ferns are pretty generally distributed through the warmer parts of the tropics of the two worlds. Some of the species attain a height of trunk of more than sixty feet, with a crown of fronds twenty or thirty feet across.

Foreign Correspondence.

London Letter.

THE chief event in the London horticultural world this week was the great summer exhibition of the Royal Botanic Society in their Regent's Park Garden. There is much reason for the popularity of these shows, as they are delightful displays of flowers and fruit in a delightful garden, which I have always looked upon as Robert Marnock's masterpiece in his half a century's work of landscape gardening. It is, in a great measure, due to Marnock's original arrangement of the permanent exhibition ground in these gardens that the shows are so popular. In no other place that I have seen is the possible arrangement of exhibition plants so far removed from primness and formality. The ground surface under the great tent is undulated in such a graceful and natural way that it wears a totally different aspect when bedecked with plants and flowers from the matter-of-fact arrangement of breast-high benches generally seen at flower-shows. The plants look better, too, on grassy mounds than on anything else, so that the whole scene is fresh and natural. This grassy-mound arrangement can obviously only be carried out where the exhibition site is permanent, but in all public gardens where shows are held there should be a fixed spot, and, if laid out in a tasteful way, it might

be made attractive throughout the year. Although the Botanic Society's show-ground is a model in its way it has faults, the chief being the narrowness of the pathways, which should never be less than twenty feet wide, in order to avoid unpleasant crowding. The width of walks is generally governed by the size of the tent, but if this is constructed on the ridge and furrow principle (which is decidedly the best) it costs comparatively little to extend it so as to render the locomotion of large crowds pleasant. There is in this country an ample scope for more picturesque grouping in flower-shows, and since they have ceased to be the attraction for the million that they once were there is the more necessity for novelty in arrangement.

The great gatherings of this Society afford a good indication of the prevalent fashions in floriculture. For years, and until recently, the chief features of the shows were the monster stove and green-house plants trained in perfectly symmetrical shapes, which were, of course, admirable examples of patient skill and good culture. This was the fashion for half a century; the present fashion dictates otherwise. The trained plants seen at London shows to-day are mere apologies for the elephantine specimens that once paid visits to every important exhibition up and down the country. We get, however, more variety in shows now, and the prevalent taste runs in the direction of Orchids and hardy flowers. It does not even pay exhibitors to build up those marvelous mushroom-headed specimens of show-Pelargoniums; for there is no demand for them since the advent of more easily-grown plants like the Begonia, for instance. There is an ever-increasing demand for all classes of showy, hardy plants, the great delight of those who cannot afford, or do not care, for the trouble of green-houses. At this show there was ample material for every class of visitors, and the open-air flowers won, perhaps, the most attention. Of the two great groups of bulbous Irises, the English (*Iris xiphioides*) and the Spanish (*I. xiphium*), with their graceful flowers of an infinite range of hues, the Spanish Irises are the greatest favorites, as they are smaller and their colors are more æsthetic. The ladies seem to admire most the bronzy-hued sorts and those that show odd mixtures of yellows and purples. They have been the chief florists' flower for the past three weeks, and they are seen in every flower-shop done up in all kinds of ways. The quantities of this flower that are poured into Covent Garden from the Channel Islands and the warm counties are prodigious. The Langport Pæonies, Irises and Pyrethrums, about which I wrote you last, were as pure as ever, and I do not remember to have seen such a marvelous array of Roses so early in the season. The new rival to Niphetos, Souvenir de S. A. Prince, was shown splendidly, and won additional honors by being certificated. Two other prominent Roses, which were in perfection of bloom, were Mrs. John Laing and Lady Mary Fitzwilliam, the latter a Rose that will become as popular as La France.

I shall not attempt to go into the details of the multitudinous exhibits, as there was but little novelty about them; indeed, there was a conspicuous absence of absolutely new things, for most of the so-called novelties sent up for certificates had been shown before the Royal Horticultural Society, which is the recognized authority for adjudicating upon novelties. One always sees a large collection, at these shows, of "new plants," because exhibitors know that the judges are less critical than the committee of the other society, though, of course, a certificate granted by the Botanic Society does not carry the same weight as one from the other. As instances of what are recognized here as new plants I need only mention that certificates were granted to *Lilium Hansoni* and *Lilium Martagon album*, both old plants, now having been in cultivation for years. Orchids were a strong and most attractive feature, and a grand display was made by the Duke of Marlborough, who now possesses one of the richest collections of Orchids in England, while the trade-growers were represented by the two veteran firms—Low, of Clapton, and Williams, of Holloway. It is getting late in the season for Orchid bloom, but the exhibitors had evidently "held back" for this show, as some of the specimens which would ordinarily have been past a month ago were in grand condition. The leading Orchids were *Cattleya Mendeli* and *C. Warneri*. Masdevallias, especially *M. Harryana* and its many varieties. *Epidendrum vitellinum majus*, *Odontoglossum vexillarium*, *O. crispum* (*Alexandræ*), *Lælia purpurata* and various species of Cypripedium. The leading collections were composed of huge specimens, and consequently represented old varieties, and the first prize group shown by the well-known gardener, Mr. Douglas, was perfection in all points. There were, however, a good many so-called specimens to be seen which were nothing more than several plants of a sort massed together in large pots. "Made-up plants" are not bona fide specimens, and, as there is no skill required in producing them beyond that of cunningly fitting the pieces together, they should not be allowed to compete for prizes for specimens.

Not the least attractive exhibit was that from the famous Sawbridgeworth fruit-nurseries, consisting of fruit-trees—Peaches, Nectarines, Cherries, Plums—in pots, in the most vigorous health, and bearing fine crops of fruit. This system of pot-culture has for many years been a leading feature of these nurseries. The late Mr. Rivers originated the idea of orchard-house culture, and after showing what good results can be obtained and publishing a book on the subject, his system is practiced throughout the country, especially in small suburban gardens where there is no space for wall trees. Mr. G. F. Wilson, the great Lily amateur at Weybridge, has an orchard-house fixed on the Rivers' principle, in which he grows superb fruit, though the trees are stunted and only from five to six feet high. Most of the trees have not been potted for years. The secret of success lies in administering liberal supplies of manure as top-dressing.

London, June 20th. *W. Goldring.*

New or Little Known Plants.

Vitis palmata.

THE figure of *Vitis palmata*,* Vahl, upon page 341, appears to be the first which has been published of this handsome plant. Its history is interesting. It has been cultivated in the Jardin des Plantes at Paris for more than a century, having been introduced, it is supposed, by one of the French missionaries, who were the first European travelers through the valley of the Mississippi. It was first described by Vahl (Symbolæ Botanicæ, iii., 42) from the cultivated plants and a few years before the elder Michaux discovered it on the banks of the Mississippi, the Cumberland, Tennessee and other streams during his visit to the Illinois country in 1795. He failed to recognize the plant, which he had no doubt seen growing in Paris, and proposed for it the name of *V. rubra* on account of the bright red color of the young branches. This name however, was not mentioned in Michaux's Flora, in which work the plant was merged into *V. riparia;* and it was not rediscovered until the autumn of 1882, when Mr. H. Eggert found it growing abundantly upon the banks of the Mississippi opposite Alton, and Dr. Englemann was able to establish the identity of Michaux's plant with that of the Paris Garden, and to point out its true specific characters.† Seeds of *Vitis palmata* were sent to the Arnold Arboretum in January, 1883, by Dr. Englemann, and the plants raised from them are perfectly hardy, and now flower and produce fruit every year. They possess no little decorative value and in a collection of climbing plants grown for ornament this vine should find a place. It flourishes in ordinary garden soil, and is easily multiplied by cuttings or by seed. Our figure is from a specimen in the Arboretum. *C. S. S.*

Amorphophallus Titanum.

THE flowering of this gigantic Aroid at Kew, for the first time in Europe, is an event full of interest to botanists and horticulturists. Compared with it, the Rafflesia, *Victoria regia* and *Aristolochia Goldiana*, all giants among flowers, are small and almost commonplace. There is no known plant that approaches it in size and magnificence, and, I am sorry

* *Vitis palmata*, Vahl., *Symb.*, iii., 42.—DC. *Prodr.*, i., 637.—Englemann in the *Bushberg Cat.* (1883) 17; *Bot. Gazette*, viii. 254.
Vitis riparia, Michaux, *Flor. Bor. Am.*, ii., 231 in part.
Vitis riparia, var. *palmata*, Planchon in DC. *Monographs*, v., 2, 352.
"*Vitis monosperma*, cette espèce se trouve au long des Rivièrres et nullement dans l'interieur des bois; je n'ai vu sur la Rivièrre Kaskaskia, sur le Mississippi aux environs du fort Massac sur la Rivièrre Tenasse."—*Michaux, Journal*, p. 124.

† "*Vitis palmata*, Vahl. A vigorous climber with red branches (and often also red petioles), young shoots angular and ribbed, older ones losing the bark in large flakes; diaphragms rather thick; stipules very short, rounded, nearly deciduous; leaves smooth, glabrous (or on the nerves beneath with short, straight hairs), dull and rather dusky green, cordate with broad sinus, mostly deeply three or sometimes five-lobed, lobes when long widest in the middle, contracted at base and mostly slenderly caudate-acuminate, with few coarse teeth; flowering racemes compound, long peduncled; berries black without any bloom, rather small (four to five lines in diameter); seeds long for the size of the fruit, slightly notched on top, single and then nearly globose or in twos, when they are hemispherical and very flat on the ventral side; beak very short, chalaza narrow, elongated, groove without any visible rhaphe."—Englemann in *Bot. Gazette*, viii., 254.

Fig. 118.—Vitis palmata.—See page 340.
1. Flowering Branch, natural size. 2. Flower Bud. 3. Male Flower, deprived of petals. 4. Female Flower, deprived of petals. 5. Cluster of Fruit, natural size. 6. Seed. 7. Side view of seed.

to be compelled to add, in the power and disagreeableness of its fœtid odor. The discovery of this Aroid, in Sumatra, was made by Dr. O. Beccari, a well-known botanist and traveler, whose explorations in New Guinea, Borneo and Sumatra have done so much to enrich botanical and horticultural collections. To him we are indebted for a knowledge of the wonderful Myrmecophilous plants, two of which, Hydnophytum and Myrmecodia, are in cultivation at Kew. He also sent home

living plants of *Bulbophyllum Beccari*, whose enormous leaves and massive inflorescence are unequaled by any other Orchid. This plant also flowered at Kew in 1881, and it is noteworthy that the odor of the flowers was almost as powerful and repellent as that of the Amorphophallus. In the account forwarded by Dr. Beccari to the *Gardeners' Chronicle* of his discovery of the Aroid in 1878, he stated that he found it growing side by side with a Rafflesia (a model of this wonderful parasite is in the Kew Museum), and that the tuber when dug up was five feet in circumference, and so heavy that two men could scarcely carry it. The solitary leaf was composed of a stalk as thick as a man's thigh, and ten feet high, whilst the blade was many times divided, spreading umbrella-like, with a circumference of forty-five feet. This is a little larger than the leaf borne by the Kew plant last year. The dimensions of the tuber, however, when measured in March of this year, were equal to those of the specimen described by Beccari, and it weighed exactly fifty-seven pounds. From this we entertained the hope that a flower would be developed at Kew this year, and the hope has been realized to the fullest extent. Less than a month ago the bud was sufficiently developed to enable us to see that it was a flower-bud, not a leaf-bud; at that time it was cone-shaped and about a foot high. From this it grew in height at the rate of about three inches a day, till it attained a height of nearly seven feet. The spadix is now five feet long, nearly a foot wide, club-shaped, with irregular depressions, and colored pale greenish-yellow. It stands erect in the middle of the huge bell-shaped spathe, which is three feet deep, three feet eight inches across the mouth, the margin wavy and deeply-toothed, with numerous parallel ridges on the outside. Its color is pale green, mottled at the base, almost white on the upper part, whilst inside it is a deep vinous purple with a sheen of bluish color. The whole is elevated on a stalk fifteen inches high and six inches in diameter. It is impossible to convey in words any correct idea of the stateliness and massive grandeur of this huge inflorescence. The expansion of the spathe took place to-day (21st June), and at once the house where the plant stands was filled with an odor exactly like that of putrid fish. Flies of all kinds were attracted by the smell, and buzzed about the spadix in great numbers. We cannot guess how long the flowers will remain fresh, but already crowds of people are attracted to the house by the reports in the papers concerning this plant.

Kew obtained a seedling of this Amorphophallus from the Florence Botanic Gardens in 1879, and this has been grown in a moist tropical house until its leaf faded, which usually occurred late in Autumn. The tuber was then removed from the soil, well washed, and at once placed in a pot filled with moist silver sand. Whilst at rest it was kept in a stove temperature. As soon as the bud showed signs of pushing the tuber was replanted in strong, well-manured soil, and kept perpetually moist. During the last four years the plant has been grown over the tank containing the *Victoria regia*, its pot standing an inch or two in the water. The gigantic leaf with its noble proportions has been annually a feature of this house, so that even apart from its enormous flowers, this plant is worth growing for its leaf alone.

There have flowered at Kew this year, in addition to this titanic Aroid, the following giants of the same order, viz.: *Amorphophallus campanulatus*, *A. virosus* and *Godwinia gigas*. These all have very large inflorescences, tall and handsome foliage, large tubers, and an unpleasant odor. The last is certainly a drawback; but it is more than counterbalanced by the wonderful proportions and extraordinary character of the flowers themselves.

Kew. *W. Watson.*

Cultural Department.

Summer Pruning.

PRUNING is one of the most important points of garden practice. When judiciously pruned, a shrub or tree can be held at almost any size or changed to almost any form; and, besides this, a tree or shrub can be made much more productive of fruit and flowers. On the other hand, improper pruning will not only weaken the vigor of a plant, but may destroy all its beauty of outline, and at the same time hinder the production of flowers and of fruit. The shearing of a tree or shrub into some formal shape, as of a cone or hemisphere, may have a proper place in some styles of gardening; but, in general, it may be said that the clipping of trees or shrubs into any set form is radically wrong. I have seen many good collections of shrubs ruined because each one was cut into a shape to resemble all the rest. In this way all individuality is lost, whereas the object of pruning should be to develop whatever beauty each plant possesses on the lines of its natural growth. It is utterly impossible to secure any fine effects in large shrubberies where each individual is trimmed after the same pattern. Evidently the true way is to encourage each one to make the best of its natural graces, and then to arrange this infinite variety of form into a harmonious picture.

If we prune for the purpose of increasing the flowers of a shrub or tree, we must prune different species and varieties at different seasons of the year; but surplus wood and suckers can always be thinned out during the summer season, and wounds which are cut clean in midsummer will heal more quickly than those made in frosty weather. Maples, Birches, Yellow-woods and many other trees bleed copiously when their branches are cut in the spring, but they heal over more quickly if pruned while in full leaf. Again, shrubs which bloom on wood made the previous year, of which the early Spiræas, Forsythias, Honeysuckles, Viburnums, Syringas, Philadelphus and Deutzias are examples, should receive their chief pruning soon after the flowers have fallen. This will encourage a growth of young wood with flower-buds for the following year. Of course, when these shrubs are cut back in early spring before flowering, the flower-buds are sacrificed. On the other hand, shrubs like *Hydrangea paniculata*, *Desmodium penduliflorum*, *Hibiscus Syriacus* and others, which flower on the new growth, bloom more abundantly when cut back severely in early spring. But even in this case the surplus wood should be thinned out during the summer.

With anything like an extensive collection of shrubs constant attention must be given to pruning during the whole growing season, and this is especially true where coarse-growing shrubs and those of delicate habit are planted together. If this is neglected the less robust plants will soon be smothered out by their vigorous neighbors. Many shrubs are pruned too much. If a healthy young plant is carefully pruned at the outset, allowed plenty of room, with all the cross branches cut away to admit light and air, and all the old flowering wood shortened in after bloom and the over-strong shoots stopped, at midsummer, it will not only retain all its natural beauty, but this beauty will be increased, and it will be full of flowers the next year. After the branches of large shrubs have been thinned out, stronger shoots should be pinched back with the thumb and finger, for this will hasten the growth of flowering-buds. Many trees and shrubs can be made to produce flowers and fruit at a smaller size than if they were left to themselves or pruned only in the winter or spring. This summer pinching also helps to ripen up the wood, and leaves it in good condition to withstand the cold. I have known trees which were tender, when left to grow naturally, to endure our winters fairly well when the wood had been properly stopped by pinching it in summer. This is especially true in wet seasons, when the branches often continue to grow until the frost kills them. Apples, Peaches, Plums, Filberts and many other trees can be made to bear when quite small if the new growth is stopped once or twice in the summer. I now have Peach-trees five or six feet high which are loaded with fruit, the result of pinching back in summer. While trees are growing vigorously the flower-buds do not form well, but by this summer pinching the flow of the sap is checked and the buds are developed. Many plants also ripen their fruit better when the strong shoots above the fruit have been stopped. Young trees can be easily trained with very little use of the knife when they are taken in time, the surplus buds rubbed off from the lateral branches and the branches properly pinched back. In short, summer pruning is useful and indispensable for the removal of superfluous branches in the middle of the tree or shrub, and for the shortening-in of all over-vigorous branches and such as interfere with the native symmetry of the tree; and by thinning out the weak and misplaced branches additional nourishment is supplied to those that remain.

Arnold Arboretum. *Jackson Dawson.*

The Vitality of Seeds.

MOST books on horticulture contain tables showing the number of years that the seeds of garden plants remain "good"—that is, retain their germinating strength substantially unimpaired. These tables, compiled by different writers, do not quite agree; yet they are not widely discrepant. Of late, our agricultural experiment stations have been engaged in testing the vitality of seeds sent out by dealers; and these reports show a considerable amount of difference. It is, unquestionably, a wide-spread practice among seedsmen to mix old stock with new; and in some conspicuous cases this has been shown, by the station experiments, to have been carried

Forest Vegetation in New Zea'and.—See page 339.

very far, so that nearly or quite half of some stocks had entirely lost their power to grow.

In the case of those seeds which hold their vitality substantially unimpaired through a considerable number of years, this mixing of the remainders of one year with the fresh stock of the next is unobjectionable. To do otherwise would be foolishly wasteful, and, if insisted on by buyers would unnecessarily enhance the price. But to sell dead seeds, or seeds the vitality of which is weakened by keeping, is a dastardly wrong. On this point there can be no mistake. I believe that any one who will make a study of seeds, with a glass of a moderate magnifying power, will, in many cases, be able thus to judge very closely of their quality. But every gardener should procure his stock of seeds early enough to be able to test them in good time, although, fortunately, there is now a large and increasing number of seedsmen in this country who never wilfully send out inferior seeds.

In regard to the keeping of home-grown seeds, so that their vitality shall be as well maintained as nature will allow, there are some necessary points to be observed. The first is, that they shall be well ripened. This is a nice point, and one not always easy to secure—in fact, impossible, except by making successive cuttings. That they should be well and promptly dried, cleaned and secured from attacks of vermin is obvious; but the duration of their continued vitality is very much affected by the after care. They should be kept dry. This is more important than the question of light, temperature or ventilation. My own experience of now many years has not convinced me of any positive disadvantage from exposure to the air or to low degrees of temperature. In fact, many seeds retain their vitality better in open barrels and boxes, or in bags, than in tight packages. Warm this valuable chiefly as a security against dampness. Many times I have found seeds good that had repeatedly endured a cold of 40° below zero; but dampness will very quickly destroy them. Light bleaches or darkens them; the color of seeds is rarely maintained unchanged for any considerable time.

Newport, Vt. *T. H. Hoskins.*

Orchid Notes.

Cattleya granulosa.—Several nice strong plants of this striking species are now producing their flowers here with great freedom. One gets so accustomed to look upon all Cattleyas as being represented by the numerous gorgeous-flowered forms of the labiate section that it is quite a relief to meet with such a contrast to them as that presented by the species now under consideration.

C. granulosa belongs to a very distinct section of the genus typified by *C. guttata.* It has been cultivated in English gardens now for nearly fifty years, having been introduced, it is believed, from Guatemala in 1840 by Hartweg, who at that time was collecting in tropical America for the Horticultural Society of London. Notwithstanding the fact that it has been under culture so many years, it is a neglected Orchid in many collections, although well-grown plants when in flower present a type of beauty difficult to match, and one which should entitle this species to more respect.

The plants are characterized by their slender, terete and jointed stems, nearly of the same thickness throughout, except at the base, where they are slightly narrower, and clothed

A Group of Staghorn Sumachs on the Border of a Lawn.—See page 338.

with silvery membranous sheaths. At their apex are two oblong-lanceolate, deep-green leaves, from between which arises a stoutish peduncle bearing from three to eight flowers, each about four inches across. The sepals are oblong acute, the two lateral ones being falcate; the petals are nearly similar, but broader and wavy on the margins of the upper half. Both sepals and petals are of a shining coppery-green color, handsomely spotted near the edges with crimson-purple. The two lateral lobes of the lip meet over the top of the column; they are creamy-white outside and lined inside with rows of crimson-purple dots, which become very thick on the recurved tips; the middle lobe, which expands into a crisped emarginate limb in front, has the surface traversed by irregular granulated lines of deep crimson-purple, radiating obliquely from the central purple lines which run from the base. It is from these granulations, or papulæ, as they are now called, that the plant received its specific name from Dr. Lindley.

About two months ago there was another very handsome Cattleya in flower, namely, *C. Schofieldiana*, which, from a botanical point of view, must certainly be looked upon as a magnificent variety of *C. granulosa*, although it is much superior in every way to that species as far as the grandeur of its flowers are concerned. In character of stem, leaves and growth *C. Schofieldiana* is similar. The flowers, however, are half as large again as those of *C. Granulosa*, and are of a rich tawny yellow, suffused with a coppery tinge, and thickly covered with large crimson spots. The large lip is very beautiful, the surface of the middle lobe being covered all over with deep crimson-purple raised dots, as in *C. granulosa*. *C. Schofieldiana*, which is a native of Brazil, flowered for the first time in England in the autumn of 1882 with Mr. G. W. Law-Schofield, of Rawtenstall, near Manchester, in compliment to whom it was named by the late Professor Reichenbach.

Both of these plants thrive well in pots, which must be well drained. They should stand well above the rims in a compost of rough fibrous peat, which may have a little charcoal added, so as to render it not only more porous, but also to prevent it from becoming sour. Owing to the slender nature of the stems care must be taken not to let the plants get too dry during the resting season, otherwise they are liable to shrivel—a misfortune which could not be easily rectified. During the time of growth an abundance of water may be given judiciously, and as much light as possible, so long as there is no danger of their being scorched by the heat of the sun. This is necessary to enable the plants to ripen their growths, without the proper development of which it would, of course, be impossible to expect good flowers.

St. Albans, June 7th, 1889. *John Weathers.*

Phalænopsis Culture.—The best-grown collection of these plants in England is that of Mr. Partington, of Cheshunt, whose gardener, Mr. Searing, has met with the most surprising success in the cultivation of these ofttimes "miffy" plants. I saw them last week. Imagine *P. grandiflora*, *P. amabilis* and *P. Schilleriana* with from eight to eleven leaves each, and some of the leaves measuring sixteen inches long by four and a half inches wide. No spot, no bad health in any shape. The spikes bear as many as sixty flowers each. The house in which these plants are grown is a lean-to, with an aspect full south, and it is twelve feet high at the back by four feet high in front. Mr. Searing allows the sun to shine upon his plants in early morning, and again in the afternoon. He ventilates very carefully, but never keeps the house shut up close. A dressing of salt is given to the gravel in the house, both on the stages and in the path. This is done several times in the year, and Mr. Searing attributes much of his success to this. It is difficult to imagine how salt thus applied can have any effect on the health of the plants, as salt does not evaporate. Still, the proof of the pudding is in the eating, and there may be something in this salt dressing after all. I am told that collectors always find the strongest and healthiest Phalænopsis within reach of an atmosphere affected by the sea, and we know that the genus is generally confined to small islands. There does not appear to be anything but the salt in Mr. Searing's treatment that would account for his wonderful success. His plants are in teak baskets, well-drained, with a little sphagnum about the roots. The strongest plants are placed over pots half-filled with charcoal, and into these the roots have grown most vigorously. In winter only sufficient water is given to keep the moss alive, and in summer the plants are kept fairly moist at the roots. Mr. Searing does not disturb his plants at the roots, but simply removes the dead moss in spring and replaces it with living. Mr. Herman Wendland, whose knowledge of Orchids, and especially of Orchid collections, is exceptional, was filled with astonishment when he saw these plants. *W.*

Kew, England.

Notes on Wild Flowers.

Habenaria orbiculata, one of the Rein Orchis family and now in flower, is an interesting plant. The leaves (a pair of them) are nearly round, lying flat on the ground, and are often ten inches broad. They are dark, shiny green in color, and from between them comes the flowering stem, ten to twenty inches high, with its loose raceme of almost white flowers. Its natural home is in the shade of Spruce and Hemlock. It can be grown without much trouble in moist, well-drained soil in the shade if leaf-mould is placed about its roots. It is a desirable plant for its curious leaves as well as for its interesting flowers.

Habenaria dilatata, also in flower, is a valuable plant for artificial bogs, but it can be grown in ordinary soil in a moist, shaded place. It grows from one to two and a half feet high, with a dense spike of pearly-white flowers, six inches to a foot in length, which are deliciously fragrant. Another species of this genus, almost identical in its general appearance with *H. dilatata*, except that the flowers are greenish-white and not fragrant, is *H. hyperborea*. The two species grow together, and it is difficult to distinguish them when not in flower.

The Hare-bell (*Campanula rotundifolia*) is quite interesting, now that the little blue, bell-shaped flowers are open. The natural location for it is in rocky soil, and it is a valuable plant for the rockery. It will, however, thrive in any ordinary soil. The plant grows about a foot high, often higher, with an abundance of fine, grass-like leaves along its stems.

Two desirable plants now in bloom are the Tickseed (*Coreopsis lanceolata*) and the Golden Ragwort (*Senecio aureus*). The former grows about two feet high with large, bright yellow flowers often two inches broad, on long stems, several from each plant. The plant remains a long time in bloom and is easy of culture. The flowers of the Golden Ragwort are smaller, but in dense heads or umbels, of a bright yellow and very pretty. It is a variable plant according to its location. The most showy form is found in low, wet meadows, along the borders of swamps. It takes easily to cultivation, and may be grown in moist upland soil.

One of our most desirable bog plants is the Side-saddle Flower, or Pitcher Plant (*Sarracenia purpurea*). Its pitcher-shaped leaves, when grown in the sun, are of a rich purplish color, three to six inches long, usually full or partly filled with water, and the single purple flower is nodding on a stem a foot or more high. The plant requires wet soil, and seems to prefer peat or muck. We have grown it in wet clay-loam, but the leaves seem to be sickly and the flowers dwarfed. Another pretty bog plant, but one which we never have tried to grow, is *Pyrola rotundifolia*, var. *uliginosa*, one of the Shinleaf family. Its spike of reddish-purple flowers is very showy—the most showy of any of this genus we have seen. It is found in cold bogs, and, probably, would not thrive except on a boggy soil.

Charlotte, Vt. *F. H. Horsford.*

Narcissus for Borders.—Among spring-flowering plants Narcissi take a foremost place. The many species and varieties now in commerce are perplexing, to say the least, to the general cultivator, and it has occurred to me to note a few of those that may be relied on to succeed and increase under ordinary garden treatment. The first to bloom here is always Golden Spur. This is a bright yellow variety, and in my opinion superior to Emperor. Golden Spur is fully expanded a week before any other kind, and increases rapidly. Next in order of flowering is *N. princeps*. This is a form of *N. Pseudo-Narcissus*, and is well named. Sir Watkin, the largest of all with us, produces noble flowers and foliage, and doubles the number of its bulbs every year. *N. bicolor Horsfieldii* is the best known of the bicolor section, and should be grown in every collection, the bright yellow of the corona being a beautiful contrast to the paler yellow divisions of the limb. Of *N. poeticus* and its varieties, we can strongly recommend the variety Ornatus, which flowers two weeks earlier than the type, while *N. poeticus plenus* flowers two weeks later. The type and these two varieties give a supply of flowers lasting over a month. Orange Phœnix is, perhaps, the best of the double varieties, combining, as it does, two shades of yellow in a charming manner. Of all the varieties of *N. incomparabilis*, none, perhaps, excepting Sir Watkin, are superior to the type. The best time to plant Narcissus is as soon after the foliage dies down as possible, and before the bulbs commence to make new roots in fall—that is, in September. Home-grown bulbs are, we find, preferable to the imported ones, which need a season or two to get established. Choice kinds of Narcissus should be lifted about every three years; the soil enriched, and the bulbs replanted, for this gives them

an opportunity to fully develop, and insures plenty of good flowers. We plant six inches deep, cover the bulbs with two inches of soil, then give a sprinkling of manure and fill in the soil. If the manure is brought in immediate contact with the bulbs they are liable to rot. By adopting the above plan we find the rains provide the young roots with the full benefit of the manure used. This remark applies also to most of the Lilies, for which many people are averse to use manure; we find, however, that the main feeders of the Lilies are the roots produced between the surface of the soil and the top of the bulb.

Passaic, N. J. *E. O. Orpet.*

Orchard Notes.—During July many fruit-trees can be budded. A strong bud, if it takes well, is as good as a graft. Just as the longitudinal growth stops is about the time to bud, although the operation can be successfully performed at any time before the sap ceases to flow.

Sometimes the work of looking for borers about the base of fruit-trees is forgotten. The first inspection should have been made earlier than this, and a later one should follow. A keen-pointed knife and a piece of stiff wire will now dislodge the grubs. Cherries budded on Mahaleb stock are failing, largely on account of the borer at the root. Purchasers should procure trees worked on the Mazzard.

Clapp's Favorite is a valued early Pear for family use, but is not greatly prized for market, on account of its lack of keeping qualities. But the fact that its large, beautiful fruit can be gathered in this latitude by the 10th of August makes it desirable.

Germantown, Pa. *Joseph Meehan.*

Recent Publications.

The Home Acre. By Edward P. Roe. New York: Dodd, Mead & Co. 1889.

Mr. Roe's "Success with Small Fruits" has long been familiar to thousands of readers, and the present little volume will be found another store-house of useful information, so pleasingly conveyed that it will doubtless instruct and profit many whom more strictly scientific treatises would repel. It is a series of papers, collected from the periodicals where they were issued before Mr. Roe's death, dealing with the problems which confront the owners of suburban places. "The area of land purchased in such places," says Mr. Roe, "will depend largely on the desires and purse of the buyer; but about one acre seems to satisfy the majority of people. This amount is not so great that the business man is burdened with care, nor is its limit so small that he is cramped and thwarted by line fences. If he can give to his bit of Eden but little thought and money he will find that an acre can be so laid out as to entail comparatively small expense in either the one or the other; if he has the time and taste to make the land his playground as well as that of his children, scope is afforded for an almost infinite variety of pleasing labors and interesting experiments." The taking title of the book thus expresses its exact purpose, as giving counsel not to the professional horticulturist but to the amateur with modest funds but a genuine love for out-door work and beauty. Yet it is essentially practical in scope, dealing not at all with the culture of flowers, but, in its successive chapters, with Tree-Planting, Fruit-Trees and Grass, the Garden (as a useful rather than an ornamental spot), the Vineyard and Orchard, the Raspberry, the Currant, Strawberries, and the Kitchen Garden. The advice given with regard to the selection and planting of trees is sound in substance and clearly conveyed. Good counsel of a general sort relates to the preference that should be given to native over foreign species—a preference, of course, which need not mean narrow exclusiveness, only, when the Norway Spruce is mentioned, we should have been glad had its unsuitability to the climate of our Eastern and Middle States been expressly set forth. Speaking of Grape-culture, Mr. Roe insistently recommends that, where birds are destructive, songsters should not be shot, but that the bunches should be protected by mosquito-netting bags, as is the constant custom in Germany, or by cheap paper-bags with the lower corners cut off to admit of the easy passage of moisture. And, he adds, "clusters ripen better, last longer on the vine and acquire a more exquisite bloom and flavor in this retirement than if exposed to light as well as to birds and wasps. Not the fruit but the foliage of the Grape-vine needs the sun." With regard to keeping grapes after they are cut, Mr. Roe says that few of the early sorts will last long, but that some of the later ones can be preserved a considerable time in boxes stored where the temperature is cool, even and dry, and that "some of the wine-grapes . . . will keep under these conditions almost like winter-apples. One October day I took a stone pot of the largest size and put in first a layer of Isabella grapes, then a double thickness of straw paper, then alternate layers of grapes and paper until the pot was full. A cloth was next pasted over the stone cover, so as to make the pot water-tight. The pot was then buried on a dry knoll below the reach of frost and dug up again on New Year's Day. The grapes looked and tasted as if they had just been picked from the vine."

Correspondence.

Forests and Civilization.

To the Editor of GARDEN AND FOREST:

Sir.—We might have had some real forestry here in the State of New York if we had been sufficiently advanced in the art of living; if we had had the interest in the public welfare and the perception of our obligation to coming generations, which are necessary to the development and persistence of civilization. The entire Adirondack Wilderness should have been held permanently in the possession of the state. Then a real school of forestry could have been established somewhere in the woods, and young men could have been trained in the practice of this art, and they could have been employed in the care of the forests and woodlands of other portions of the country. The whole tract of 8,000 square miles was originally heavily wooded. The timber could have been cut off as the trees matured, and, of course, should have been so cut off. Nothing could be more absurd than the notion that trees should never be utilized or removed. Whenever a tree has come to its best it should be cut down, and its wood applied to some useful purpose, so as to obtain its value, and in order to provide for a succession of generations of trees, and thus for the permanent life of the forest.

If the Adirondack forests had been thus intelligently managed and administered they would now have been for a long time yielding an increasing revenue to the people of the state. The whole population would have been greatly benefited by the reduction of taxation. Every man and woman in the state would have been richer to-day—would have had more of the means of subsistence and of comfort and happiness than at present. Every child in the state would have been born to a better inheritance, and into more favorable conditions than now. The forests would have been better now than ever before, and they would have gone on increasing in value to the people of the state, with the increasing density of population, and on account of the exhaustion of the timber-supply in regions fit for agriculture.

The Adirondack region is not fit for agriculture. No part of it is suitable for any other than forest-conditions, and these should have been maintained forever. It is indeed impossible to disturb these conditions very extensively, or to remove the forests permanently, without destroying the region itself and annihilating everything that makes it of any value. I doubt if an instance of more obvious and complete adaptation of a region to a special and particular use can be found in the whole world. Nature made this region for the permanent and everlasting growth of forests, and this sole and exclusive adaptation to a most important function should have been recognized.

As I said years ago,* if the Adirondack forests could be saved by legislation, one of the best possible measures would be "An Act for the Discouragement of Agriculture in the North Woods." The lumber-business is not by any means the only destructive agency at work here. Tens of thousands of acres, entirely unfit for any use but forest-growth, have been stripped of trees, and by cultivation and pasturage have been rendered incapable of reproducing the only crop for which the land ever had any adaptation. It is strange—if anything in human folly is strange—to see so many people persist in the effort to "farm" where the soil is so meagre, and the country so high and cold, that no profitable return for their labors is possible. The thin film of soil disappears after a few years, leaving only the bare, inert sand or gravel, and as most of the "farming land" here is rolling or hilly, the slopes soon begin to break down and wash away. Great gullies are formed, which grow wider and deeper every year, till vast waterless tracts of shifting sand, or of clay and gravel, varied only by rock-ledges and boulders, stretch before the unhappy traveler where once grew noble forests fed by perennial springs.

I have carefully studied the lives and work of farmers in nearly every part of our country—from the Atlantic to the Pacific coast, and from Canada to Mexico—and I have found nowhere else conditions so forlorn and forbidding as here in northern New York. The local histories of the regions adjoining the Wilderness abound in stories of the hardships of

* In the New York *Tribune.*

the early settlers of those counties, especially of those endured by the women of those times. The hardships continue with little mitigation, but as few people are interested in contemporary history, there is no record or observation of these miseries.

The region was meant to be let alone. It has no natural fitness for agriculture. It is pitiful to see the scanty growth of vegetation which the farmer's toil produces here cut off by frosts in both spring and autumn, and, in many places, even in the middle of summer, while in the southern States of this country there are millions of acres of fertile soil lying untilled beneath most genial skies. The effort to farm these inhospitable lands has also been the source of a large proportion of the fires which have destroyed so much of the remaining forest. Land is cleared by being burned over, and in a dry time the fire extends from the fallow to the woods, despite the best efforts to keep it within bounds, and it is a common saying in the woods that such a conflagration is often a convenient accident for the farmer, as he plants corn the next spring in the burned woods without any clearing whatever, and raises a crop in the ashes. A great deal of the "farming land" here has been brought into cultivation in this way. It is all, from beginning to end, a most wasteful and suicidal process, and the inevitable end, the ruin and disappearance of the soil itself, is speedily reached. Man has no power to create a new world. He has not yet learned how to take care of the one which he inherits, but his ability to wreck and exhaust it is very great. The accumulation of the soil of the planet, out of which must come everything that supports human life, civilization and happiness, has been the slow, patient process of vast and unimaginable periods of time, and it has been chiefly the work of vegetation. While the forests stand on these mountains, the soil out of which they spring grows perpetually richer, and it would continue to do so forever if man had yet become a rational being. Each year's leafage as it grows and falls wins and deposits for us a little more of the precious material out of which all things human are fashioned, lifts another slight increment from the dark province where all is inert and lifeless, up into the light, and starts it on its shining way to the realm where it shall take its part in the play of consciousness. The stones are thus changed to bread. But since man began his work in these regions he has blotted out, over great areas, the results of millions of years of Nature's patient toil, and has brought back and re-established here the hard and forbidding conditions under which she began her processes of vegetable growth, and it will require great cycles of time again to redeem and recover these vast tracts of scorched and desolate stone.

Moira, New York, May, 1889. *J. B. Harrison.*

Roadside Adornment.

To the Editor of Garden and Forest:

Sir.—A striking feature may be added to roadside adornment by sowing the seeds of wild flowers where grass does not readily take root, there being many plants that thrive where it does not. For instance, if a road is cut through a knoll of sand and gravel, as frequently occurs, the rugged surfaces give little encouragement to grass, while the Lupin finds them altogether congenial. Beside giving a mass of purple bloom in May, the pretty foliage of this plant covers the ground throughout the summer. No other sowing than the first is needed, as Nature has provided for the dissemination of the seed by the bursting of the pods.

The owner of a sandy wayside has obtained very satisfactory results by gathering seeds from the great variety of flowers bordering the railroad track (that bounds his farm on one side) and scattering them broadcast beside the highway. Among these Lupin predominates, but *Lithospermum hirtum*, Vetch, Wild Pea of several varieties, Cone-flower, Butterfly-weed, Painted Cup (*Castillegia coccinea*), Golden-rods in great variety, and the persistent little Harebell, all follow along in their season. A troublesome wash-out along this roadway that was filled with brush and other unsightly material, to prevent farther encroachments of the water, has, by skilful planting, been changed into a place of beauty.

Basket Willows screen it from the road on the lower side, and higher up along the slopes are set Purple Lilac, Red Cedar, Bladder Nut, Scarlet Maple, Whitewood and Osage Orange; Sassafras springing up of itself.

Any surplus of the flower-garden was transferred there. Yards of crimson Boursault and yellow Roses trail over the brush and flower in their season, and in the vicinity low Scotch and native Roses flourish. The Lemon Lily and Iris add, too, their brightness to the scene; and all these trees and plants thrive without care or attention.

This spot is a favorite nesting-place for birds, and I am inclined to think the Roses owe their freedom from the pests that infest the gardens to the presence of these active neighbors.

Klinger Lake, Mich. *Dorcas E. Collins.*

The Newtown Pippin.

To the Editor of Garden and Forest:

Sir.—Referring to the note of Mr. J. J. Thomas in your issue of May 26th I would state that the Newtown Pippin—by which he means, I suppose, the Newtown Pippin of his "Fruit Culturist" and the Green Newtown Pippin of Downing's Treatise—is one of the most obscure Apples in California, while the Yellow Newtown is generally considered our best winter Apple. In several hundred reports from Apple-growers, which I have secured as a basis for tabulation of varieties in "California Fruits, and How to Grow Them," which I now have in press, the Green Newtown Pippin was approved by a single grower in a single county, while the Yellow Newtown is reported favorably from every county from which I secured reports, and nearly all counties have been heard from. The data presented in this work of the popularity of different varieties here are interesting for comparison with the tables of the American Horticultural and other societies representing eastern experience.

College of Agriculture, Berkeley, Cal. *E. J. Wickson.*

The American Beech.

To the Editor of Garden and Forest:

Sir.—I have never seen a more noble or beautiful tree than an American Beech growing on the Luce Farm, in the town of Riverhead, and within a quarter of a mile of Long Island Sound.

Soon after the Revolutionary War the entire head was cut from this tree to make a brush-harrow. Not discouraged by this rude treatment it threw out seven branches, equi-distant, in various directions, forming a beautiful and symmetrical head. Its trunk, two feet from the ground, is ten feet in circumference; its height to the branches, eight feet; the circumference of four of the larger branches is respectively, six, six, five and a half and five feet, and they extend from thirty-six to thirty-eight on either side, giving the head a diameter of seventy-four feet. The ends of the branches nearly touch the ground and turn up with a graceful curve. The outline of the top is regular and massive and beneath the branches is a beautiful camping-ground, where a party of one hundred or more would be perfectly protected against sun or shower. *C. L. Allen.*

Floral Park, N. Y.

To the Editor of Garden and Forest:

Sir.—I have often heard complaints that the Crown Imperial does not flower well, and perhaps the method that has given me fine blooms for the last fifteen years may interest some of your readers.

When the stem-leaves fade I cut the stalk to within six inches of the ground, and when convenient (some time in July) dig up all the bulbs with the earth about them, and put in its place rich mould from a frame or old hot-bed. I plant the bulbs again immediately in a layer of this mould, covering with the same, and treading it down firmly. In December I cover the bed with some litter, and good flowers are sure to come in spring. The place where these Crown Imperials grow is well open to the sun in early spring, but later in the year is heavily shaded by a spreading Ash tree.

Cambridge, Mass. *J. M.*

Dosoris.

To the Editor of Garden and Forest:

Sir.—It would be difficult to find a more desirable situation for country homes than the north shore of Long Island, with its frequent bays cutting deeply in between well-wooded hills, behind which fertile farm-lands roll away in endless variety of surface. Every bluff is breezy with coolness from the Sound, and on either hand is a diversity of pleasing prospect across green fields or glittering waters. Along this shore, close to the mainland and hardly twenty miles from the City Hall in a right line, lies the Island of Dosoris, a portion of an old estate which has borne that name for nearly two hundred years. The original title was derived from the Matinecock tribe of Indians, and in 1668, under a patent granted by Sir Richard Nicolls, the first English Governor of the province, it passed into private hands, and in 1693 "it was owned," says the record, "by John Taylor, who died seized thereof, leaving his surviving daughter and heir-at-law, Abigail, who subsequently intermarried with the Reverend Benjamin Woolsey, and the title was therefore, by deed of lease and release, conveyed to him, and the trust from that circumstance acquired

the name of Dosoris—*dos uxoris*." Some sixteen years ago the island was bought by Mr. Charles A. Dana, who at once began the systematic planting which has made it one of the most interesting gardens in the country. The entire island, about forty-five acres in extent, is now one garden, and is maintained throughout as a garden, the pasture and forage lands being on the neighboring mainland.

Mr. Dana's collection of trees and shrubs and herbaceous plants has grown year by year, until it rivals in richness the most complete private collections of the world, and yet the island is much more than an arboretum or a plant museum, for the planting has been disposed with reference to some fine old trees which already stood about the house, and to the belt of forest which already fringed the island, so as to bring out and emphasize the natural beauties of the place. The house, with broad, hospitable, vine-shaded piazzas, stands on high ground, and from one side the prospect is over a stretch of perfect lawn, with glimpses of the open waters of the Sound between the trees, to give life and light to the picture. On the other side the most attractive view is down a long slope and through a vista of rich foliage towards the bridge which unites the island to the mainland. A seawall is built all around the island, and it is draped and festooned with Matrimony Vine, our native Bitter-sweet, a Japanese species of the same genus (*Celastrus articulatus*) and *Periploca Græca*, which are planted on the top, and relieved by an upright growth behind them of Eleagnus, Tamarix and some species of Prunus. On the banks, exposed to the lashing of storms, are set such sturdy trees as Locust and Red Cedar, while the Waxberry and Beach Plum have proved perfect shrubs for such a position, extending down to high-water mark, and hiding the dry sand and gravel of the bank with a mantle of luxuriant leafage. Within this trim circumference, in every shrub-border and group of trees and flower-bed, the universal health and vigor of the vegetation bear witness to the skill and intelligence with which the garden is cultivated and cared for, and over all is the charm of perfect neatness and order that is absolute.

To give a list of the garden treasures of Dosoris would be to make a catalogue of the trees and shrubs of ornamental value that flourish in this climate, but some idea of the richness of Mr. Dana's collection can be gathered from such statistics as these: Of Oaks there are 29 species and varieties; of Hickories, 7; of Walnuts, 6; of Maples, 39; of Magnolias, 15; of Pyrus, 13; of Prunus, 20; of Lindens, 11; of Aralias, 7; of Cornels, 12; of Euonymus, 12; of Rhus, 8; of Spiræas, 33; of Viburnums, 20; of Berberis, 12; while 2,700 plants of Azalea indicate the abundant way in which many species and varieties are used. The figures relating to conifers are still more remarkable when the slender success which usually attends their cultivation in this region is considered. Of Pines there are 38 kinds; of Spruces, 21; of Firs, 23; of Chamæcyparis, 17; of Junipers, 16; of Thujas, 20; of Hemlocks, 10; and so on. Mr. Dana considers one secret of his success with conifers to be the unsparing use of the knife. He makes repeated extirpation of the leader to cause a full and vigorous growth of the lower branches and certainly some of the specimens which have been habitually pinched back are objects of singular beauty. This is notably true of some Nordmann Firs, a Cilician Fir and a Cephalonian Fir, which have been subjected to this treatment for a long series of years.

Besides the general assortment in the fruit garden there are 400 dwarf, espalier and cordon trained Pear-trees, with Apple, Plum, Cherry and other fruit trees trained in the same way. Figs, German Medlars, Filberts, with other rare fruits and nuts, are cultivated, and this year an unusually heavy crop of Madeira Nuts will be produced. Japanese, Spanish and American Chestnuts and Chinquapins are also grown. In the two acres of vineyard sixty varieties of Grapes are found including many of Rogers Hybrids, which are the most favored here. Between the rows of grapes and in the young orchard as well as in an independent garden are seven acres where every sort of vegetable is grown and all new varieties are tested as soon as they are sent out, many of them, indeed, being sent here before they are put on the market. In connection with the garden is a Mushroom cellar, eighty feet long, a structure built tunnel-fashion, where fresh Mushrooms can be gathered from October until May. The green-houses are arranged in compartments for Roses, for tropical plants, for winter-flowering stock, and a second range consists of a propagating house, a cool house for plants like Calceolarias and Pelargoniums, a Fern house, and a vegetable house while some 250 sashes are used for frames and hot beds.

It was my good fortune to be one of a small party who visited these well-appointed grounds last week upon the invitation of Mr. Dana, whose hospitable habit it is to give a day among his trees now and then to guests who take an interest in them. To go through this collection, or as much of it as it is possible to see in a day, under the guidance of its owner and of Mr. Wm. Falconer, for many years head-gardener of the place, is something like a liberal horticultural education, but apart from very general facts, like those given above, it is difficult to make a selection of topics that might prove interesting to your readers. As an item of seasonable interest it may be worth recording that among trees in flower, on the 11th of July, I noted the Kœlreuteria, our eastern Catalpa (the western species was out of bloom) *Catalpa Kæmpferi* and many of the Lindens. Of shrubs in bloom the most striking to me was *Stuartia pentagyna*, with its large, pure white blossoms. The Japanese *Stuartia Pseudo-Camellia*, whose flowering caused some sensation in England last year, has bloomed here for several years, but had gone out of flower. Next were three species of Hypericum—*H. Kalmianum*, *H. prolificum* and *H. aureum*, which last would be a perfect shrub if the old flowers, withered and brown, did not remain so long amid bright golden blossoms in their prime. *Hydrangea paniculata*, also in flower, seems to me more graceful than its more widely-known variety, Grandiflora. Other shrubs in bloom were Spiræas in variety, dwarf Horse-chestnut, *Lespedeza bicolor*, *Ligustrum Ibota*, *Buddleia recurvifolia* and *B. Lindleyana*, *Grewia parviflora*, *Symphoricarpus occidentalis*, Trumpet Vine, and the Chinese Wistaria, which was showing its second crop of flowers. Among the gayest of other plants in bloom were Cannas, Montbretias, Perennial Phloxes, Clematises of several species and varieties, Silphiums, Rudbeckias, Statices, Hollyhocks, and all seasonable sorts of hardy perennials with annuals in countless varieties, since every novelty in this line is grown and tested. In the flower-garden the annual and perennial Poppies, Larkspurs, Canterbury Bells, Sweet Williams, Foxgloves, Stocks and other early bloomers were being cleared off and replaced with Gaillardias, Coreopsis, Mignonette, Gladiolus, Zinnias, Marigolds and other plants, which, as a second crop, will make a bright display of flowers before and during autumn.

Of conifers, besides the specimens named above, which seemed conspicuously beautiful, I noted a glaucous form of the Atlas Cedar; a *Sequoia gigantea*, probably the finest on this side of the continent; a Japanese Hemlock of wonderful grace; a remarkable specimen of Pseudolarix; a Numidian Fir, which seems to me one of the noblest of its class; a Douglas Spruce, not quite as large as some specimens I have seen, but unexcelled in form and in the soft texture and color of its foliage. *Elæagnus longipes*, a fruiting branch of which you figured in GARDEN AND FOREST last year, was loaded with fruit which was relished by all. There is little doubt that by careful selection this relative of our Buffalo-berry could be made to produce a valuable dessert or culinary fruit. Not far away from the Eleagnus stands a most effective bed of grasses, with an immense mass of *Arundo donax* in the centre, eighteen feet high, varieties of Eulalia and *Briza maxima*, ranked about it according to their various stature, and the whole bordered with *Stipa pinnata* and *Pennisetum longistylum*. Noteworthy groups of shrubbery were made up of several different species of the same genus as of Spiræa and Viburnum, and one mass of *Rosa rugosa* alone, twenty-five feet square, must have been an imposing spectacle when in bloom. The Rose season was over, but the pink, ever-blooming Bourbon Rose, Mrs. Degraw, was loaded with flowers, and it was pronounced by both Mr. Dana and Mr. Falconer the best garden Rose in the entire collection. The bewildering profusion of vines I thought noteworthy. Woody and herbaceous, tender and hardy, they were clambering and twining, wherever there was a support to cling to and a handful of soil for root-room.

"You must use a good deal of fertilizing matter to feed all these plants so well," said one of our party to Mr. Dana.

"One year I bought 5,000 loads of stable-manure," was the reply; "but my ordinary annual supply is about 1,500 loads, brought here from New York by schooner."

Besides this, quantities of sea-thatch, forest-leaves, lawn-cuttings and the like are collected for mulch, which is more largely and systematically used here than in any other garden which I have visited. The theoretical value of mulching, both in summer and winter, is admitted by all, but it is demonstrated here in actual practice, for the principle which controls every operation here seems to be that whatever is worth planting is not only worth planting in the best manner possible, but it deserves the very best after care that can possibly be given to it.

New York, July 15th. *S.*

Notes.

Syringa Pekinensis flowered this year in the Arnold Arboretum probably for the first time in cultivation.

The flower of the giant Amorphophallus, described in another column of this issue, remained open but a single day, when the expanded spathe again closed about the spadix.

In regard to the hardiness of *Heuchera sanguinea*, Mr. A. H. Fewkes, of Newton Highlands, Massachusetts, reports that it passed the winter safely in his border. It made stout plants in rather light soil, flowering freely. It received the usual covering of leaves given to other plants in the same border.

Market-gardeners in England sometimes add to their profits by cultivating hardy flowers among their vegetables. For example, in a Cornish market-garden recently described in the *Gardeners' Chronicle*, a growing demand for Wallflowers had induced the owner to plant four acres of them, on ground the first duty of which was to produce Potatoes. As soon as the Potato crop is up the young Wallflower plants are inserted, "much in the same way as Broccoli and Mangels were planted a few years ago."

Kœlreuterias are blooming most abundantly this year and it is noticeable that on some trees the flowers are of a much brighter yellow than they are on others. There is a marked difference, too, in the time of flowering in different individuals —some being ten days earlier than others. Any well grown Kœlreuteria is a striking object when in full flower and these trees have an especial interest from the fact that they are covered with showy flowers after the great majority of trees and shrubs are past their bloom.

The Prairie Rose (*R. setigera*) is slowly finding its way into American gardens and few persons see its corymbs of large, deep rose-colored flowers without feeling that it is superior to the double flowered climbing roses, like Queen of the Prairies, which have originated from it. It is the only American Rose with climbing stems and is one of our most beautiful climbing plants. Its foliage is handsome and less liable than that of the garden hybrids to attacks from insects and its beautiful flowers appear in great abundance after the general Rose season is past.

In a private letter, Mr. F. L. Temple, of Shady Hill nurseries, now in Europe, states that the most interesting flowers he saw in England were the Pyrethrums, and he was surprised to find that plants so little known and grown at home were, next to the Rose, the most popular ones in English gardens in June. The best double varieties are as good as the finest China Asters in autumn, and they are admirable for cutting. Among the named single varieties, Melton and Mrs. Bateman Brown were noted as the best, while Captain Nares, Mont Blanc, Flora, Haage & Schmidt and M. Barrall were among the finest double sorts.

Mr. Andrew S. Fuller finds that the green Cabbage-worm is discouraged by the following treatment: Two quarts of coal tar are put into an open vessel which is set in the bottom of a barrel and the barrel is filled with water. In forty-eight hours the water is impregnated with the odor of the tar although the tar is not dissolved in it. The water is then sprinkled abundantly on the Cabbages and the odor penetrates every portion of the head, killing or driving away the worms. As the water evaporates no stain nor odor remains on the cabbage. The same quantity of coal tar can be made to impregnate several successive barrels of water.

The great Rose Shows of England this year have differed altogether in quality from the exhibitions generally held when collections of Hybrid Perpetuals and of the Tea-scented varieties were only to be found. For the late exhibitions, collections were invited of Moss and Provence Roses, of hybrid Chinas, of Bourbons, of Noisettes, of Single Roses "of decorative value," of climbing Roses, of Polyantha Roses and other classes. The season there has been favorable for the production of these flowers so that the display of bloom has been remarkable, while the public interest in all matters relating to Roses and Rose-culture seems to be more profound that it ever was before.

According to the *Pacific Rural Press* the cool, moist climate and filled in, sandy soil of San Francisco are peculiarly adapted to the best development of the Fuchsia, which has grown in popularity since the day it was introduced until plants are found thriving in every unlikely nook and corner. On some residence streets there is scarcely a yard or strip of shaded ground which does not boast of beautiful specimens. Doorways and windows are shaded, stone walls and board fences covered and foundations hidden—in fact, some yards are entirely filled, so that the Fuchsia plays an important part in the city's decoration and there are many single specimens there that would do honor to any part of the world.

In response to a request by the Board of Park Commissioners of the City of Omaha, Mr. H. W. S. Cleveland has prepared a report upon a system of parks adapted to that city. Mr. Cleveland gives some sound advice as to the desirability of broad, tree-planted avenues or park-ways and of systems of small parks for American cities. It is his counsel, also, that land be secured outside the present business part of the city for a park large enough to furnish the relief of seclusion from city sights and sounds and the refreshment of rural scenery. He considers that for this purpose 500 acres is the smallest area that would be required in one body, and that an equal area will in time be needed for another park in some other direction from the business centre of the city.

A new disease of the Irish Potato has been discovered by Professor J. Lamson Scribner at the Experiment Station at Knoxville, Tennessee. The disease first appears in numerous small pimples, each surrounded by a slight depression. In advanced stages the pimples and their depressed borders occupy the entire surface of the tubers, which become much shrunken. The skin is broken over the point of the pimples, giving them a grayish color. The Potatoes gradually become reduced in size, dried out of shape, and finally are very dry and hard. The cause of the disease was shown by microscopic examination to be thread-worms or nematodes, which were present in great numbers, the largest of them being about one-fiftieth of an inch in length. Nothing is known of the history of this parasitic Potato-eel, so that no remedial treatment can be suggested. Many of these parasitic nematodes pass a period of their existence in the ground, so that it is probable that they were introduced into the University farm from infected seed—for an infected tuber would be certain to carry the worms to the new crop, thus perpetuating the disease.

One of the most interesting of the old homes of America is Dungeness on Cumberland Island which lies off the coast of Georgia just north of the Florida boundary-line. The southern portion of the island, together with the estate of Mulberry Grove on the mainland, was presented by the state of Georgia to General Nathaniel Green as a recognition of his services in the Revolutionary War. He resided at Mulberry Grove, but, says a recent writer in the *Evening Post*, he planned a country-house on the island, "laid out the garden which afterwards became so famous for its tropical fruits and flowers, . . . and cut through the forest of Live-oaks those grand avenues which now form the wonder and delight of Dungeness." After he died in 1786, the house itself was built by his widow who subsequently married Phineas Miller, of Connecticut, and it became her permanent home. Its foundations rested upon an immense shell mound, a relic of Indian habitation, which was levelled to form a terraced base nearly an acre in extent, and it was of great size and dignity, containing some forty rooms. "A wide lawn lay before the house with its shades of Palm and Live-oak. On the south was an Eden-like retreat—the famous Dungeness garden. It comprised twelve acres enclosed by a massive wall of Coquina and was entirely devoted to tropical fruits and flowers. The garden fell by terraces to the creek. On the terrace nearest the house was a luxuriant growth of Crape-myrtle, and Sago Palms. Below it was a broad terrace divided by an avenue of Olives. A thick-set hedge of Mock-orange separated this from the lower garden, which was devoted to flowers and in which was a similar avenue of Olives. The garden was more particularly famed for its Roses though all varieties of flowers were cultivated. East of the garden was an Olive-grove of 800 trees brought from Italy, which attained a flourishing and profitable growth. Beyond, in the broad fields, 400 negroes toiled to raise the Sea Island Cotton and Sugar-cane that yielded the revenues of the estate. If the guests wished to ride there were the long dim avenues of the forest and the eighteen-mile-long beach. If they wished to sail, bright waters that seem especially provided for the yachtsman surrounded them; to hunt, they found an abundance of bear, deer, wild turkeys and water-fowl in the forest which even now covers much of the island." Dungeness was burned during the Civil War in a Christmas frolic of the negroes who were then in undisputed possession. It lay ruined and deserted for years, but was bought a few years ago, with half the island, by Mr. Thomas Carnegie of Pittsburgh who erected a modern villa on the old site, reclaimed the lawns and gardens from their wildness, and eventually added the northern half of Cumberland to his estate. The lawns in this climate are always green, and Orange-trees, Palmettos and a host of other sub-tropical plants group with the Live-oaks in splendid confusion. But the Live-oaks themselves are the great feature of Dungeness.